

Star plants of Nosterfield Nature Reserve

Nosterfield Nature Reserve (including Flasks and Kiln Lakes) supports many vascular plant species (wild flowers, grasses and allies, and ferns). Here are some of the specialities.



Low-lying parts of the reserve can be shallow-flooded for long periods, depending on the groundwater level in the underlying magnesian limestone aquifer. When these areas dry out for a few months in late summer, a short-lived inundation vegetation features annuals such as the uncommon **Mudwort** *Limosella aquatica* and **Golden Dock** *Rumex maritimus* (photo ←).

Unfortunately, this distinctive plant community now struggles against an invasive tide of New Zealand Pygmyweed *Crassula helmsii*.

The nationally rare **Rugged Stonewort** *Chara rudis* is actually a complex alga rather than a vascular plant. This aquatic plant colonised a newly-excavated pool in North Field but seems not to have persisted. It's one of two scarce stoneworts recorded at Nosterfield, the other being **Clustered Stonewort** *Tolypella glomerata*, found once at Flasks Lake.



An intriguing flora not unlike that of fixed sand dunes has developed in the short grassland of the old silt lagoons. In some years, eight species of orchid can be found here including abundant **Common Twayblade** *Neottia ovata* and **Northern Marsh Orchid** *Dactylorhiza purpurella*. The rarest is **Autumn Lady's Tresses** *Spiranthes spiralis*, only recorded in two seasons so far but still the first local record for 70 years (photo ←). Most of the orchids seem to be in decline at present, perhaps because the sward is becoming thicker, so we're winter grazing with Hebridean sheep in the hope of reversing this trend. Another surprise colonist here is a single bush of the dune (*argentea*) subspecies of

Creeping Willow *Salix repens*. Around the margins of the lagoons can be found patches of naturally-colonising **Blunt-flowered Rush** *Juncus subnodulosus* with planted **Tufted Sedge** *Carex elata* and **Bottle Sedge** *C. rostrata*. The reason for introducing these species is that while some grassland plants are remarkably good colonists, many wetland plants seem unable to colonise of their own accord. As with all planting on the reserve, nearby seed sources are used to maintain genetic diversity and local adaptations.

While the low-lying parts of the reserve are only accessible during organised guided walks,



the Tanfield-Nosterfield path provides an easy opportunity to see a number of interesting plants. North of the car park, a wide range of lime-loving species grow on gravelly banks alongside the path. These include **Wild Basil** *Clinopodium vulgare*, **Ploughman's Spikenard** *Inula conyzae*, **Bee Orchid** *Ophrys apifera* (photo ←), **Quaking Grass** *Briza media* and **Spring Sedge** *Carex caryophyllea*. Despite its name, **Common Cudweed** *Filago vulgaris* is a rather local and declining plant which can be seen here and in several other gravelly places on the reserve. Hedge bottoms provide habitat for a number of flowers of long-established woodland like native **Bluebell** *Hyacinthoides non-scripta* and **Spurge Laurel** *Daphne laureola*.



There are fewer notable species on the Quarry but **Thistle Broomrape** *Orobanche reticulata* (photo ←) is nationally-rare and legally-protected. In the whole of Great Britain, it grows only in Yorkshire with most populations on the magnesian limestone. Why it's so restricted is unclear: it's a parasite on common thistle species, mainly the ubiquitous Creeping Thistle *Cirsium arvense*. Lacking chlorophyll, Thistle Broomrape is a ghostly off-white colour with a mauve-tinged stem. Unfortunately, it grows in a location unsuitable for public access.

Brookweed *Samolus valerandi* is frequent in the silty margins of Flasks Lake and **Hybrid Reedmace** *Typha x glauca* grows in the reedbed.

Rare mosses recorded from the Quarry include **Short-beaked Aloe-moss** *Aloina brevirostris* on exposed magnesian limestone and **Knowlton's Thread-moss** *Bryum knowltonii* on a gravel spit at the edge of Flasks Lake.

Though relatively few uncommon plants occur naturally on the Quarry, this is the base for our work to restore the biodiversity of the Swale and Ure Washlands. One of the wildflowers we're hoping to re-introduce to the area is **Tower Mustard** *Turritis glabra*, which once grew commonly on sandy waysides and field borders between Boroughbridge and Thirsk. As its habitats disappeared or became overgrown with tall vegetation as a result of increased

nutrient levels in the environment, Tower Mustard vanished from North Yorkshire, the last record coming from West Tanfield in 1981. While former sand and gravel quarries provide potentially suitable habitat, there seems to be seed bank left, so it won't recolonise naturally.



Now classed as nationally Endangered and a conservation priority, we obtained a small amount of seed from its last remaining stronghold in the Norfolk Breckland, another area with sandy soils. Initial attempts to establish a self-sustaining population at the Quarry were thwarted by ever-hungry rabbits but Tower Mustard has flourished in a small rabbit-proof enclosure near the nursery (photo ←).

Nearby, on what was a barren silt flat until 2018, is Flasks Fen (photo ↓). This is a pioneering experiment to establish wetland habitat using local sources of seeds and cuttings, which are grown on in our nursery. The planting scheme is based on the small surviving remnants of natural fen in the lower Ure and Swale valleys, landscapes once characterised by their wetlands, marshy commons, meres and floodplain meadows. We're also attempting to reconstruct wetland plant communities which we know occurred in the not-too-distant past, based on the rich archive of local botanical records.



This is a long-term project with the aim of establishing self-maintaining plant communities which can be managed by grazing and mowing. There are many challenges, including relatively high nutrient levels, the depredations of geese and rabbits and invasive Pygmyweed. Not all the species we introduce to the trial plots will survive but Flasks Fen and our nursery provide an opportunity to see several interesting wetland plants. Please let us know if you'd like to visit: you'll be most welcome but this area is not normally open to the public.

One of the most successful species in the trial plantings is **Great Fen Sedge** *Cladium mariscus*, known from just a handful of ancient wetlands in Yorkshire, including kettle holes in the Ure valley near Jervaulx and Sharow Mires near Ripon. Robust once established, Great Fen Sedge appears to reproduce from seed only rarely in the wild and relies on slow vegetative spread, so it's a very poor colonist of new habitats. The photos below show it flowering in our nursery (L) and growing naturally at one of our seed-collection sites (R).



Also flourishing is **Tufted Sedge**, which forms conspicuous tussocks. This is a characteristic plant of gypsum sink-holes, forming a belt around the seasonally-flooded margins. These sink-holes, known locally as dubs, are a particular feature of the lower Ure valley. Tufted Sedge provides great habitat structure: the tussocks offer a refuge for terrestrial invertebrates when water levels are high but also a humid retreat for semi-aquatic ones when the water recedes. Furthermore, the tussocks themselves store lots of carbon-rich organic matter.



Another local speciality is **Tufted Loosestrife** *Lysimachia thyrsiflora* (photo ←). The only native population surviving in England is found at Gormire Lake near Thirsk but it grew formerly in a handful of other sites in the lower Swale valley. In fact, it was discovered at Leckby Carr near Topcliffe by Matthew Dodsworth, the Rector of Sessay, as long ago as the 1680s.

In addition to Tufted Sedge, other *Carex* species which can be seen in the trial plots include **Bottle Sedge**, **Bladder Sedge** *C. vesicaria*, **Greater Tussock Sedge** *C. paniculata* and **Cyperus Sedge** *C. pseudocyperus*. In the summer-dry fen-meadow zone, key species include **Blunt-flowered Rush**, **Purple Moor-grass** *Molinia caerulea* and **Purple Small-reed** *Calamagrostis canescens*, all of which are now well-established.

The rarer **Slender Sedge** *C. lasiocarpa* grows only in a small exhibition plot – this uncompetitive species was once found in several locations in the Washlands but is probably locally-extinct. It's likely that nutrient loads are now too high for it in most of lowland Yorkshire nowadays. Similar constraints apply to the attractive **Marsh Fern** *Thelypteris palustris*, also to be seen in the exhibition plot but formerly known from Sharow Mires.



Slender Sedge and Marsh Fern (photo ←) are among a long list of plants which have either disappeared from the local landscape or are on the brink of doing so. 'Ark' populations of several of these are maintained at the nursery, in the hope that they can eventually be reintroduced once degraded habitats have been restored or suitable new habitats created.

A good example is **Bird's-eye Primrose** *Primula farinosa* (photo ←). This beautiful plant still grows around limestone seepages in the Moors and Dales but was once widespread in damp meadows across the Central Vale too. A combination of habitat loss and drainage mean it's been lost from the Washlands for now, but it could potentially be reintroduced to a few sites where it occurred formerly.



Lower Ure Conservation Trust

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